The
IDEAL KINEMA
Architecture Equipment and Service
SUPPLEMENT TO KINEMATOGRAPH WEEKLY

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The
IDEAL KINEMA

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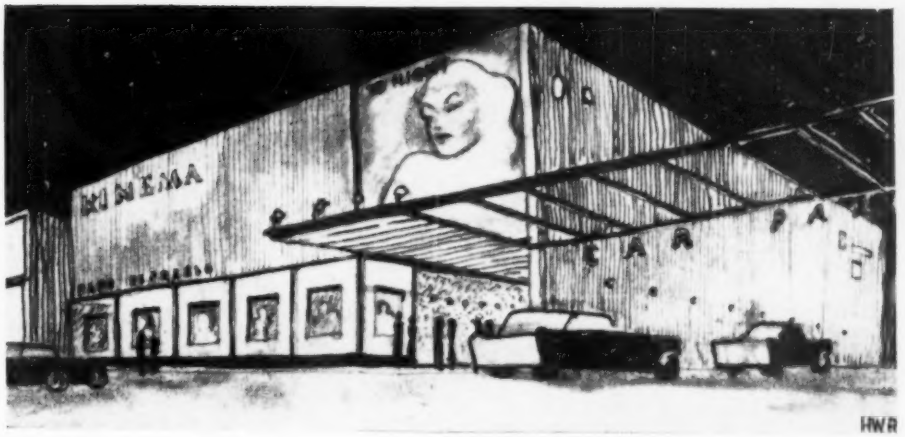

An impression by the author of how display publicity can be used as part of the architectural design

Bad Publicity Can Kill Design

by H. Werner Rosenthal, ARIBA

A GREAT deal has been said in these columns about designing the ideal cinema. This was from various aspects of architecture and construction. Now I am probably going to put my foot in it if I talk about publicity and try to teach their business to cinema managers and publicity agents.

So let me approach this problem first as a member of the paying public.

The sole purpose of publicity is publicity. In my local cinema this is of very secondary importance, as one always knows "what is on at the local," or one waits for a particular film to come round.

It is different for a cinema in the non-residential areas. When passing on top of a bus or in a car or being jostled along in a rush hour crowd one wants to see at a glance what is on.

Instead we have cinema entrances cluttered up with posters, shapes, cut-outs, and lights of all sorts: usually it takes quite a while before one can sort out what is being shown now from "forthcoming attractions" for next week, the week after or the month after, and advertisements or supporting programmes. It certainly takes longer than it takes a bus to pass, unless one counts on the entertainment value of all these posters while held up in a traffic jam. Unfortunately this also gives time to become thoroughly familiar with the vulgarity and luridness which one has come to associate with some cinema publicity.

Must this be so? Do overcrowded, confusing advertisements really bring in one more patron? And if they do, is it also likely that they put off an equal number!

Perhaps it is not up to me to judge; nor do I want to be too harsh on the generally low standard of poster design, bad lettering and vicious colouring. Nor do I want to put all the blame on hard-pressed managers, who are trying to make use of every available nook and cranny to publicise their films.

The fault lies in the design. There simply is no space available as a rule. Whoever designed the building has omitted to make use of one of the most stimulating possibilities in the design of a cinema front.

Publicity there must be and therefore it should be part of the design conception. It is one of the axioms of modern architecture that it is the interpretation into structure of all human, technical and scientific needs of a building. Publicity, as a conscious design element, can make a vital contribution, which, distinct from the more permanent architectural features, has the added advantage of being something different every week!

This has been well realised in other spheres. For instance, how dull would our tube stations be without the posters and advertisements, well ordered and architectural, but entertaining and decorative.

It is this kind of over-all design one ought to aim at in cinemas.

So it is here where the architect and the publicity manager meet. Illustrations will show this better than words. In the case of the Cinephone in Birmingham I designed poster stations to be accents in the composition of a long low front. They complete a composition and thereby draw the viewer in their direction. Very little extra is required.

It should be possible for a cinema group to have standard posters and their dimensions should be agreed upon before starting a new building or a reconstruction. If, on the other hand, a powerful feature be made of poster frames it may be less important whether all posters fit those frames exactly.

Again, lettering, neon or otherwise, often appears as an afterthought, while this, too, could make a strong contribution to the composition of the elevation.

As pointed out in my previous articles dealing with decorative treatment of the interior, the analysis of all requirements should inspire the solution of the architectural problems, not artistic whims. The cinema has probably no longer any need to advertise itself as a "novelty feature," but, as pointed out before, there is something lighter and more casual about a visit to the cinema than to the theatre and a gayer note might certainly be struck in the treatment of the exterior. Posters and light should play a vital part here.

I would like to plead for one thing however: building is a team effort. In the conception of a scheme the architect will work hand in hand with the owner to create a fine building and meet the owner's needs. This team spirit should continue after the architect has left the site.

There should be an appreciation of the spirit of the building. But how rarely is this the case! Cinema fronts are covered in streamers and banners, stretching over whole façades covering and eliminating what might have been the result of careful thought by the designer and often producing that vulgarity still too often taken for granted as part of "cinema."

The visual sense which is expressed in what is best in cinematography should be reflected in the exterior display.

The Cinephone, Birmingham, designed by Mr. Rosenthal, is an example of display space being made an integral part of the design

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the rebuilding of

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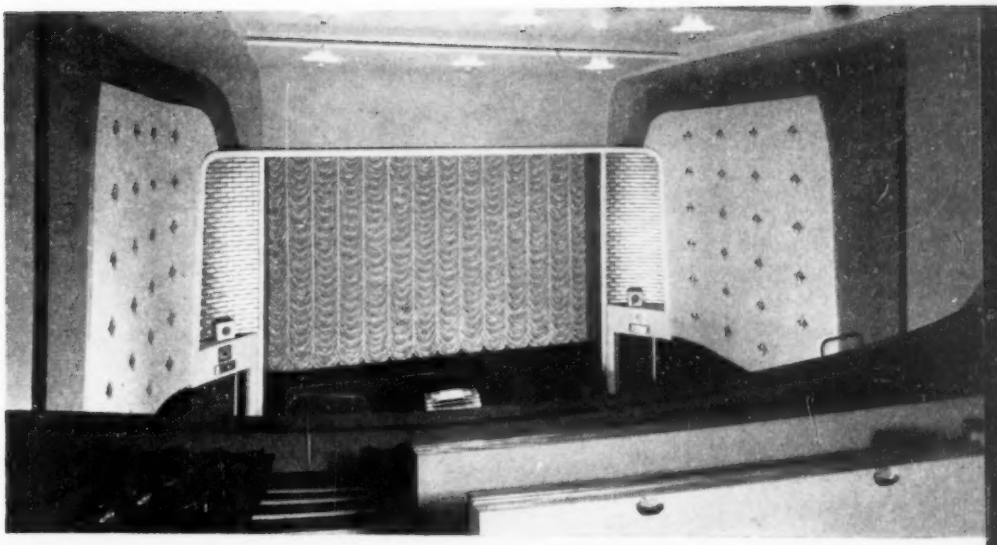
ABC's Ritz, Maidstone

Character In Light And Colour



Design that draws the eye naturally to the proscenium opening is a feature of the auditorium of the Ritz, Maidstone

LIGHT, colour and contrasting materials have been used to give a distinctive, modern character to ABC's latest new cinema, the Ritz, Maidstone.

Actually, the Ritz has been built on the site of the former Central cinema, which was in the process of being modernised in June, 1955, when it was gutted by fire. This allowed for complete replanning, and the reconstruction was completed under the direction of C. J. Foster, LRIBA, chief architect to the company, and R. J. Westaway, ARIBA.

Existing shop fronts have been removed and the entrance now consists of a battery of fully-glazed polished timber doors, above which is a marquee-type canopy, with a deep illuminated glass facia carrying interchangeable lettering. Under the canopy is a battery of recessed down-lights, and above is a neon fin sign carrying the name of the cinema and the ABC symbol.

Apart from the fin sign the upper part of the facade has not been changed and the new stone-work on the lower part was chosen to match the existing stonework.

Twin Pay-boxes

Design of the entrance hall is to draw people into the cinema. Immediately facing the street doors is the double staircase leading to the balcony, flanked on each side by a staircase down to the stalls. Two separate pay-boxes have been provided adjacent to these, so as to speed ticket issues. On one side, also, is a contemporary-styled sales kiosk.

The pay-boxes and all other specialist joinery in the cinema were the work of G. E. Wallis and Sons, Ltd., main contractor for the building, whose other work has included building the Shakespeare Memorial Theatre, Stratford-on-Avon, and reconstructing the circle and doing other work at the Empire, Leicester Square.

Approach to the stalls is through two foyers designed to prevent noise penetration, and to help in maintaining the correct balance of air conditions within the auditorium.

The whole colour scheme of the entrance foyer was based on the rubber flooring, which is in a mottled grey shade, livened by a red and white triangle motif and a dark red and black mottled border. On the walls and elsewhere extensive use was made of Lionide. A dark maroon shade was chosen for the sales kiosk and the main publicity panel; and the dwarf walls to the staircase were covered in Lionide of a grey background with a red and white spot pattern.

An attractive feature is the ceiling of the entrance hall, which has been very lightly textured in Perlite, into which are set a number of etched glass light fittings, in fibrous plaster domes. The ceiling over the main staircase follows the same pattern.

Over the staircase a bold contemporary wall-paper has been used to break up the expanse of a long curved wall at high level.

The stairway itself is rubber covered, with Ferrodo nosings, but this floor covering gives way to carpeting in the balcony foyer. Here the walls have been treated with grey and red spotted Lionide. The coved ceiling is white, with a contemporary stencil in pink. The fluorescent lighting trough also illumines a publicity panel opposite the vomitory doors, which are painted dark grey-green, with white architraves.

Toilets and powder rooms leading from this foyer (and also those approached from the rear stalls) have been finished with tiling and terrazzo paving.

The auditorium has seating for 1,270 patrons, 869 in the stalls and 401 in the balcony. A stepped ceiling of mushroom shade has its edges picked out in pink to provide relief and the extract grilles form an integral part of the design. Tungsten lighting fittings in large, coved metal spinnings, contain secondary as well as the primary lighting: these fittings are dusty pink.

Fibrous plaster has been used for the ante-proscenium, which has been treated with copper-metallic paint, picked out in strong cerise on horizontal bands. These also contain concealed tungsten lighting coves directed towards the screen.

The decorative plaster work was executed by Clark and Fenn, Ltd.

Other striking features are the large panels flanking the proscenium. These bear fibrous plaster stars, finished copper-metallic, set in a solid plaster background of a pale mushroom shade. Each of the panels is surrounded by a dark purple band.

Panel Features

Main walls of the auditorium are in a strong mushroom pink, and, again, good use has been made of the dark maroon Lionide up to dado level and the level of the under-side of the balcony. For contrast the Lionide-covered panel at the rear of the stalls is in mushroom pink, and the same shade has been used for the covering of the barriers.

Front of the balcony is of dark purple, with a close-set pattern of small, pink pateras.

The festoon curtains of heavy, oyster satin are illuminated by a battery of three-colour-change footlights. The Harkness Perlux screen is 38 ft. wide.

Carpeting in the auditorium (and the foyers) is of red Wilton, with a small overall design, and the seating is covered with a specially manufactured worsted velvet in a warm, red-rust colour; this particular material, incidentally, is said to be dust-proof.

In the projection box Peerless Magnares have been installed with full facilities for wide-screen and anamorphic presentation. The sound was installed by RCA.

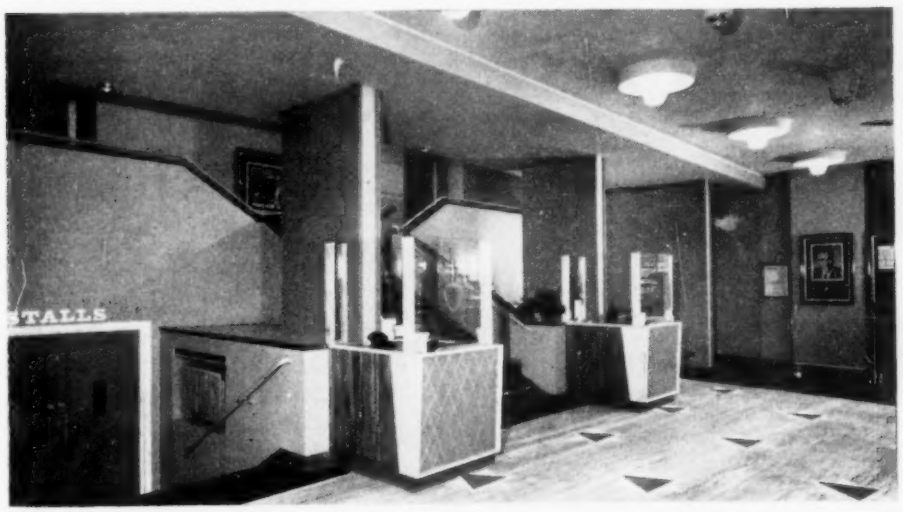
The air conditioning plant at the Ritz is designed to filter (and in winter to warm) 13,000 cubic feet of air per minute. Two fully-automatic, thermostatically-controlled, oil-fired boilers have been installed for the heating system. It was installed by John Evans (Sanitary and Heating), Ltd.

Manager of the Ritz is A. P. C. Bridger, an honorary life member of the Kine Company of Showmen.

Warmth and Comfort

NOW is the time to consider one's heating and ventilating requirements for next summer and winter: firms engaged in this work can give it their full attention in late spring or early summer.

In the February issue of "The Ideal Kinema," therefore, there will be a review of the services and equipment available for heating and ventilating your cinema, together with an expert article on the subject.



Twin pay-boxes divide the entrances to the stalls from the staircase leading to the circle

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COMFORT WITH SIMPLICITY

The Berkeley, Bilton Grange

ERECTION of The Berkeley cinema, just off Holderness Road at Bilton Grange, provides a further amenity to a large and growing community in East Hull and in addition it is well placed for serving the outlying districts of Holderness—particularly as a large car park has been provided to the rear of the cinema.

This new cinema seats approximately 1,200, 800 in the stalls and 400 in the balcony and incorporates screen and sound facilities suitable for anamorphic and wide-screen film presentation.

Siting was determined by the Hull Corporation and owing to the poor nature of the sub-soil, piling was necessary. The foundations are carried out in reinforced concrete beams and pile caps and the structural framework is of steel, fully protected against fire in accordance with modern practice.

The steel bracket framing and metal lathing for the flat and shaped suspended plaster ceilings was installed by Steel Bracketing and Lathing, Ltd., of Thornton Heath, Surrey.

Queueing Space

The main entrance, canopy and internal foyers face the main road and the large foyers give considerable queueing and waiting space.

The auditorium has been designed to ensure that comfort and good acoustics will allow patrons to see and hear films in pleasant surroundings.

Main scheme of decoration and internal finishings is similar to that used in the Cecil cinema recently erected for Hull Cinemas, Limited (Brinley Evans, managing director), and which was also designed by Gelder and Kitchen, F/A/LRIBA, the architects for the Berkeley.

Externally the building has been treated in a simple and straightforward manner and it was decided that comfort, internal finishings and decoration should be given first priority rather than an elaborate external elevation.

Colour Change

The main screen to the auditorium is 44 ft. wide so that CinemaScope and other large screen techniques can be exploited. The auditorium is equipped with facilities for stereophonic sound. Colour-change sequences on the screen curtains also give a pleasant and restful effect.

The lighting scheme internally, particularly in the auditorium, is one of the main features of the decoration and consists of direct and indirect fittings to give the right effect and atmosphere for a building designed solely as a place of entertainment.

The ventilation system comprises a filtered and warmed fresh air supply with the necessary air changes per hour to ensure a healthy, warm and clean atmosphere at all times. It was installed by Rosser and Russell, Ltd.

The architects have introduced varied colours into the internal decoration scheme in accordance with modern practice and, for speed, emulsion paint has been used throughout to walls and ceilings with gloss paint to the woodwork.

Above: The circle foyer is attractive'y modern and simple, but dignified. Below: The auditorium, showing the combination of lighting which is a special feature of the decorative colour scheme

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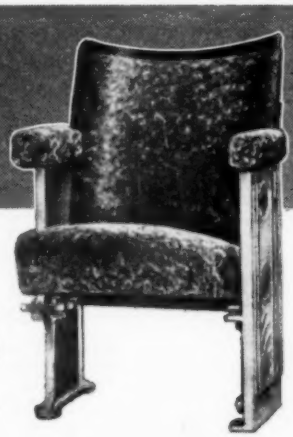

REO

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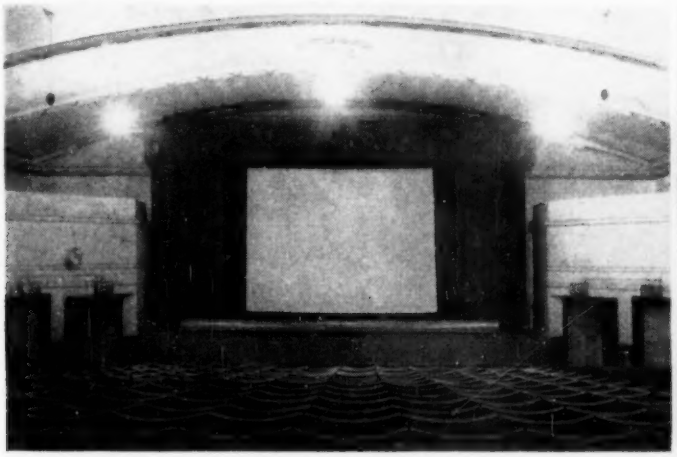
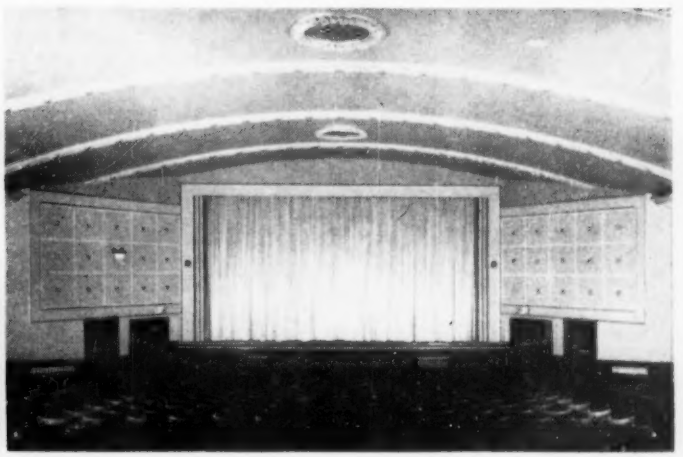
New Name Goes With New Look





THE auditorium, entrance hall and front elevation of The Cinema, Stainforth, have been completely brought up to date and the theatre has been renamed the Savoy. Pictures above show the auditorium and screen before and after the transformation.

Planning the alterations, which were carried out by Modernisation, Ltd., involved difficulties in providing for wide screen and anamorphic presentation in a somewhat old-fashioned building. A new proscenium was built, giving a 30 ft. screen opening, with splay wall treatment continued up to the ceiling line. The side wall areas were flushed and the old windows removed so as to streamline the side wall treatment. New barriers were fitted to the rear stalls and the rear wall and barriers were fitted with acoustic tiles.

The ceiling was painted in light red with the mouldings picked out in mushroom and gold. The entire proscenium and splay wall area has been picked out in tones of Wedgwood blue and mushroom, with gold relief. Side walls are in mushroom, with burgundy and gold features above the radiators, and the whole wall area is overspattered in multicolours to tone with the general scheme. Dadoes and all other woodwork have been painted crimson red for contrast.

The entrance hall was entirely remodelled, and included provision of a new sales kiosk and separate pay-box, with storage room and provision for sales service to the rear of the auditorium. To bring the appearance of the entrance up to date, contemporary wallpapers were used.

The outer vestibule was also modernised, with new entrance doors, decorative canopy fascia and flush soffits.

Other firms engaged on this contract included Woolman, Ltd., L. B. Lockwood and Co., BTH Sound Equipment, Ltd., and Claude-General Neon Lights, Ltd.

RANK CINEMA IN GERMANY

Streit's Theatre, Hamburg

ONE of Germany's most modern and luxurious theatres, the Streit's Theatre in Hamburg, was opened at the end of 1956. It was built for The Rank Organisation, and a party of executives and stars travelled from London for the opening, led by John Davis, managing director of The Rank Organisation.

The cinema was designed on the stadium principle, accommodating 300 seats in the circle and 271 in the stalls. A small stage was incorporated for personal appearances.

The main foyer was planned to give an atmosphere of luxury and quiet dignity, and housed the pay-box for the German advanced booking system, sales kiosk and staircase to the circle and lower foyer.

Main foyer decoration consisted of a pale yellow ceiling and soft grey walls to give a neutral background to the exotic blue and black carpet of modern design specially manufactured in England and imported into Hamburg.

Colour in the settees, publicity frames and floral decoration was offset by a feature wall in Coles' "Columns" wallpaper. A feature of this foyer was the ceiling fittings and wall brackets. Hand-painted photographs of Rank stars were prominently displayed.

Access to the circle was made by a convenient approach decorated in a deep rose colour with soft lighting to form a contrast. The Rank symbol, carefully illuminated, forms a feature to the approach, and a metal grille adjacent has been included to house publicity dressing. The lower foyer was served by means of a wide curved staircase with glass balustrade, carpeted the same as the foyer. Vomitory entrances have been formed from the extremity of this foyer, giving access to each side of the stalls. Special lighting was employed in the foyer to give a gradual intensity and banks of Rank star photographs and publicity features were carefully sited and illuminated.

The colour scheme followed through from the main foyer with a contrast of soft blue to the ceiling and Coles' "Strata" wallpaper in black and white against the blue and black carpet and bright yellow settees.

The main ceiling in the auditorium gives the illusion of a suspended tray, illuminated by its perimeter with concealed lighting. To offset this, a series of metal fittings have been patterned on the ceiling and the combination gives a glow to the deep wine and beech-slatted main walls.

The ribbed walls have been designed acoustically and contain perforated panels with fibreglass linings and PA speakers incorporated. The stage was equipped with a set of gold screen curtains as a back cloth when needed.

The screen is of the Harkness flat white type and gives a VistaVision picture of 26 ft. 0 in. by 14 ft. 0 in. high (1.85:1) and CinemaScope of 30 ft. 0 in. by 12 ft. 9 in.

Main foyer at Streit's Theatre, Hamburg, showing the illuminated star portraits

ACCESSORIES REVIEWED

Whilst the efficiency of the screen and projection equipment and the comfort of the appointments are probably the most important factors in a cinema, there are many different kinds of accessories that are also of importance to attract patrons and to foster their well-being. Here THE IDEAL KINEMA reviews some of the products and services that come in this general, but valuable category of accessories.

Automaticket, Ltd.

TICKET issuing machines made by Automaticket are widely used by the cinema industry as a cash control system for giving maximum security and simplifying the recording of certified returns for entertainments duty.

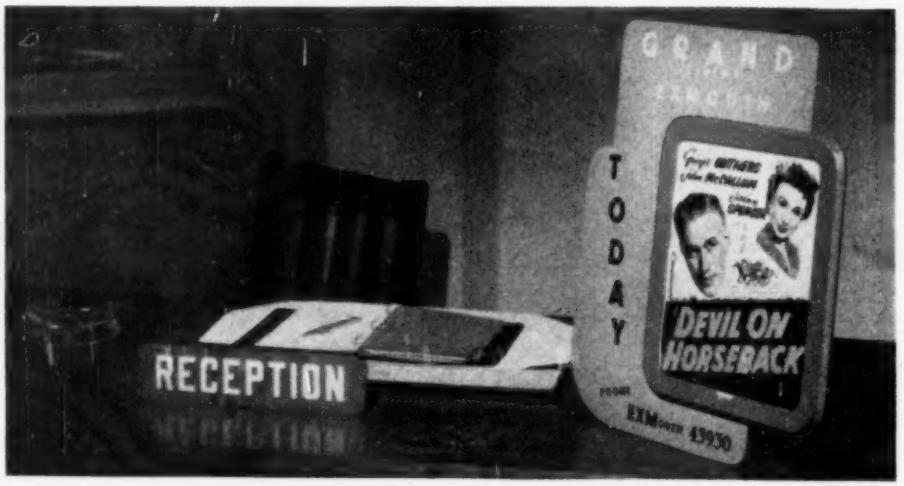
This company which specialises in the hire of ticket issuing machines and the printing of tickets, finds that the most popular machine is the manually operated Model "H" which, in many cinemas, is replacing those machines operated by an electric motor.

A. Coltman & Co., Ltd.

ALL TYPES of exterior and interior displays for cinemas are manufactured by A. Coltman and Co.

Illuminated cabinets and other types of display equipment can either be purchased or installed and completely serviced by Coltman's associated company, with all publicity provided at an inclusive weekly charge.

Most of Coltman's cinema schemes, especially those for circuit houses, are constructed in close co-operation with the architects.



Girosign's advance programme announcement suitable for hotel reception desks and window displays

Communication Systems, Ltd.

AMONG the products marketed by Communication Systems, Ltd., is the ATM intercom. telephone.

These systems may consist of two telephones only, a multi-way telephone capable of calling or being called by a number of single-way telephones, or a number of multi-way telephones that provide full intercommunication. Calls are effected by the push-button method.

There are also private automatic telephones with capacities for ten lines upwards.

Such equipment can be supplied on a rental basis, or it can be purchased, in which case a maintenance contract can be entered into.

Electrolux, Ltd.

NOWADAYS a heavy duty suction cleaner is almost a necessity in buildings such as cinemas, where the public is constantly entering and leaving.

The Electrolux Model 33 has been designed to meet this requirement. The component parts of the cleaner are contained in two sections, one of which (including the motor and filter shaker) is incorporated in the cover, and the other in the body of the cleaner which serves as the dust container. It is equipped with a hose, two extension rods, swivel carpet nozzle, swivel floor brush, small nozzle, adjustable round brush, crevice nozzle and flexible cable. These accessories allow the cleaner to be used in awkward corners and under low furniture.

Germstroyd Products, Ltd.

A NEW spraying compound for use in cinemas and other places of entertainment has been produced by Germstroyd Products.

Based on a glycol formulation, it is said to be free from irritant property, yet has a dilution factor of up to one part in 200 parts of water. It is a powerful preventive of the spread of airborne bacteria and has a pleasant bouquet in a selection of perfumes.

A great advantage claimed for the compound is that it leaves spraying equipment or automatic dispensing systems quite free from deposit. It is packed in printed one-gallon tins for which plastic power attachments can be obtained free.

The Germstroyd factory has now been moved to one of the establishments of the parent company in Bolton, Lancashire, and a new service department has been established.

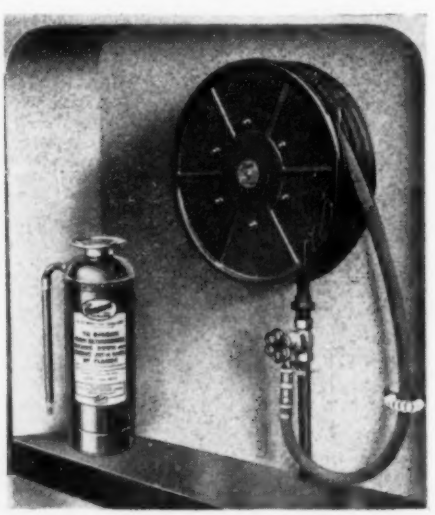
Girosign, Ltd.

IT IS OVER 30 years since F. Angelini established the firm known as Girosign with the object of providing exhibitors with up-to-date methods

continued on page 13

Automaticket Model H machine

Light industrial cleaner, Model 62, by Electrolux



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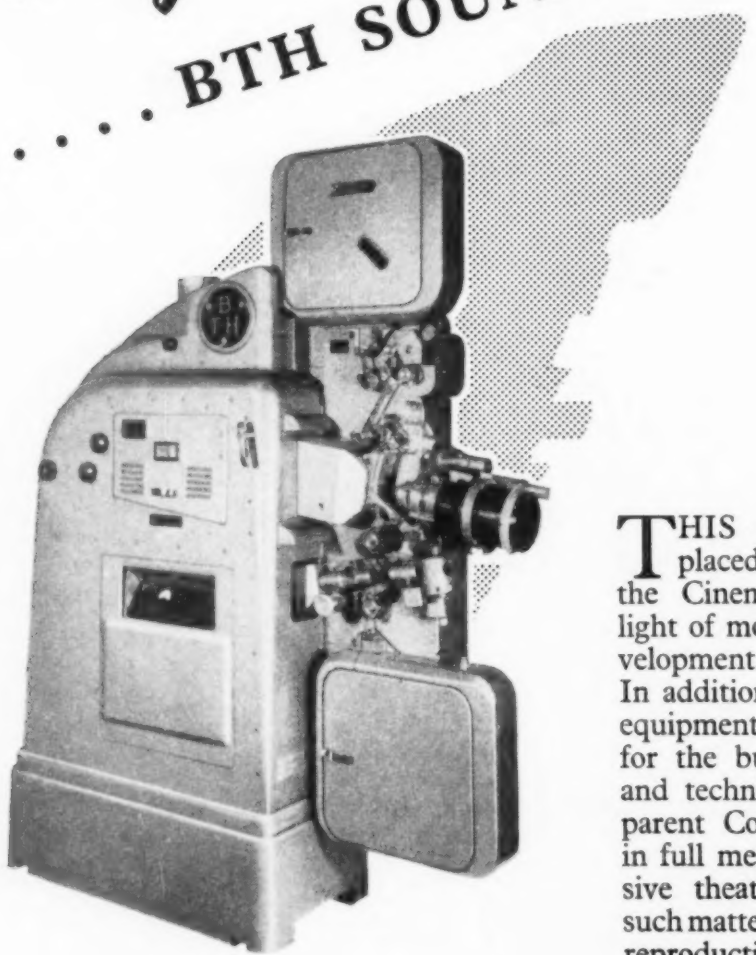

THIS Company is better placed than ever to serve the Cinema Industry in the light of modern trends and development.

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ACCESSORIES REVIEWED—contd.

of drawing public attention to present and future programmes.

The company is now in a position to offer a complete service to exhibitors, as it co-operates with every renting company, and it specialises in contracting (for minimum periods of 52 weeks) for the entire publicity service to a cinema.

Products and services are also available individually, of course, and the publicity aids are based on Mr. Angelini's belief that stills are the most efficient way of advertising current or future programmes; and, for all exterior stills frames, Girosign recommends stainless steel because it does not rust and is easy to keep clean. Flush-type frames can be made to any recess size. The latest type has front lighting to all the stills (which can, of course, be either black and white or in colour), including the main, 16 in. x 20 in. panel.

For shop windows, hotel reception desks, etc., Girosign makes hardboard stands that carry a 10 in. x 8 in. photograph, the name of the theatre and the play-date.

Among other products of the company are illuminated category boards designed to conform to local authority regulations, queue stands, seating indicators and cut-out displays.

Hoover, Ltd.

THE THREE Hoover principles—beating, sweeping and suction—are all present in the Hoover Model 912 heavy duty electric cleaner, which has been designed for cleaning carpets in cinemas and other public buildings.

The handle is adjustable down to a flat position which, with the low-built front, enables the cleaner to get under low furniture. There is an automatic adjustment to varying thicknesses of carpet and control is by a foot-operated switch.

The Hoover electric polisher can also be used as a scrubber. A low-built front, only 6¼ in. high provides for polishing in awkward places and a lamp shining through a grill in the front points out unpolished areas. The polisher weighs only 13¼ lb., but is exceptionally robust. Operation is by a foot switch.

New Hygiene, Ltd.

REQUIREMENTS of a cinema for deodorisation, disinfection and disinfestation in a pleasant way are supplied by New Hygiene, Ltd.

Best known product of the company is the Germspray atmospheric disinfectant, which has been used by the trade for over 20 years. The company offers a special contract to regular customers to supply free a spraying instrument for use with Germspray.

Among new products are Scentinel "Quiff" Aerosols and "Swish," Model T and sucker-type, designed to clean, deodorise and disinfect toilets by the flush of the water alone.

The Pyrene Co., Ltd.

A COMPLETE range of modern fire fighting appliances is manufactured by The Pyrene Company to meet every class of fire risk associated with cinemas.

The range extends from hand and portable extinguishers and hose reel units to automatic fire detecting and fire extinguishing systems, and provides exhibitors with the appropriate fire fighting appliances for the auditorium, stage, foyer, offices, projection rooms and heating and power installations.

The most familiar first-aid extinguishers for freely burning materials are those of the "Conquest" range of portable soda-acid or water (gas expelled) types. Usually of two-gallons capacity, these appliances provide a powerful jet of liquid which can reach to a distance of 35 feet. An appliance which is effective on almost all kinds of fires in their incipient stages is the "Pyrene" pump-type fire extinguisher. This is particularly suitable for small outbreaks involving highly inflammable liquids, materials or chemicals, and can be used with safety against fires involving electrical apparatus. The range of "Pyrene" hose reel units provides a simple but effective form of water line protection in the hands of the amateur.

Double-legged pedestal stand for interior display, by Coltman and Co.

The Hoover 912 heavy duty cleaner in use at the Empire, Leicester Square, London

RAE—BURKITT AMALGAMATION

THE amalgamation of Rae Stage Equipment and Frank Burkitt, Ltd., took place recently, and the organisation now comes under the control of Mr. Rae; the whole of the organisation and staff of Frank Burkitt remaining with the group; production being under the direction of T. Fagg; and the combined design and planning departments controlled by H. Kirby.

Much has still to be done at the Lant Street works in rebuilding and grouping of the various machine shops, and extensive office accommodation is now under construction, which, when completed will offer an even better service to the industry.

The group, together with London United Tools, Ltd., another company under the control of Tom Rae, is also busy with government orders under AID approval, making this unit one of the largest within the trade, engaged in the manufacture of stage and studio equipment. Negotiations are in hand for further expansion.

Jack Parry, who entered the trade with Ideal Films Ltd., and was personal assistant to Southern Morris for many years, is now assistant to Tom Rae and responsible for inter-co-ordination of the group.

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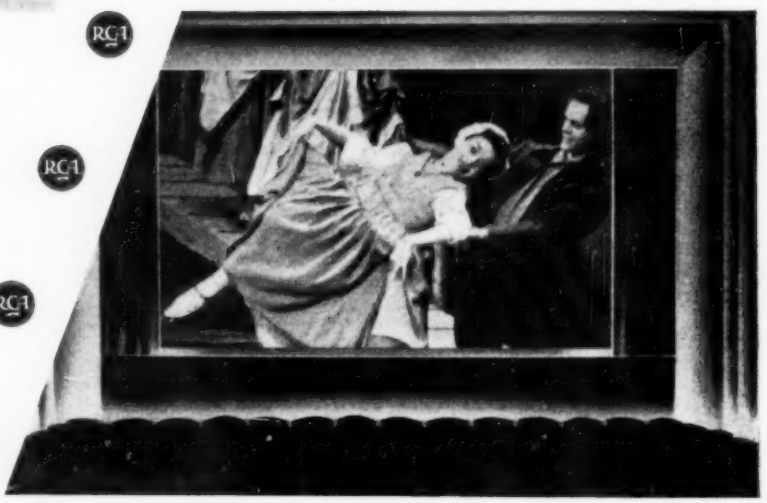

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Talking TECHNICALLY

Five chief operators receive a cheque for £6 6s. each from Walter Eckart for the "best kept box" section of the Star Circuit's 1956 Jubilee Omnibus prizegiving. They are: H. Stevenette, Savoy, Newark; J. Steeper, Pavilion, Scunthorpe; J. Ambler, Regal, Huddersfield; J. Jenkins, Majestic, Derby; and J. Anderson, Regal, Worksop

THE New Year is an appropriate time to take stock of progress. Recently I came across a yardstick which gives a measure of the progress we have made in projection since the war.

Looking through some old volumes of the *Journal of the British Kinematograph Society* (now, of course, called *British Kinematography*) I came across the report of a paper which I delivered to the Society in 1943, on the requirements of modern projector design. In 1943, remember, none of our modern projectors was more than the germ of an idea (except possibly for the BTH SUPA, which originated from after-dinner discussions between the team of war research workers at Rugby). My suggestions were for post-war planning.

A number of the ideas put forward in this paper have already been realised. But there is one point upon which developments have proved me both right and wrong: right in foreseeing that the use of non-flam. film would become obligatory (as in many cinemas is virtually the case), wrong in fearing that its mechanical properties would be so much poorer than those of nitrate base that special precautions would have to be taken in its use.

THE perfection of safety base is, perhaps, the most important post-war development. Many projectionists in the South Wales area will remember the fears that were expressed when, because of the restrictions—fully justified—upon the storage of nitrate stock in the Cardiff vaults, safety base was first introduced in the area. There were at first a few difficulties in splicing, and later the lower shrinkage of tri-acetate made the use of larger intermittent sprockets desirable; but otherwise the trade has taken safety base in its stride.

It only remains to impress upon our law-makers that precautions necessary when nitrate stock was used should now be a thing of the past; for in my opinion, the new Cinematograph Act regulations do not take full account of the fact that the modern projection room is no longer the potential menace envisaged in the original regulations.

The first demand in my paper was that "The term projector must include the picture mechanism, the illuminant, and the sound head, as a single entity." In the BTH, the Philips and the Walturdaw, besides most Continental projectors, mute and sound heads are built as a single unit. I referred to the "conflicting commercial considerations" involved in such a design—by which, of course, was meant chiefly the necessity for providing for the use of Western Electric and RCA sound heads with any mute head.

IN regard to the arc lamp, in the BTH and the Ross projectors the optical system of the arc and projector has been considered as a unit, although the inevitable use of various types of objectives makes any system of unit calculation rather abortive. However, I think I am right in saying that every post-war projector avoids a fault common with pre-war machines: that the construction of the gate and heat shields caused a certain vignetting effect when a high-efficiency arc was used.

A point stressed in my paper was the need for some means of counteracting film buckle. Air and water cooling of the gate were mentioned, and I gave a sketch illustrating the construction of the gate with a fan-type shutter and triple heat-shield. The sketch also showed a curved gate—now a feature of the BTH SUPA.

Another point I mentioned was the avoidance of emulsion pick-up in the gate. Actually the proposed palliative—the use of easily interchangeable aperture plates—has been brought about by a totally unexpected development, the need for interchanging masks for CinemaScope, wide screen, and other standards. Then as now, the only method of preventing pick-up seemed to be waxing.

Discussing the Maltese cross, attention was directed to the fantastic acceleration rates to which the film is subjected in the gate. The curves reproduced show a calculated maximum speed of nearly 15 feet per cent, and a maximum acceleration of over a mile per second per second! I nevertheless ventured to suggest that a type of motion with an even more rapid shift period should be devised, since no other method of reducing shutter losses seemed effective.

Mathematical argument indicates that a shorter film gate would be beneficial, in order to reduce the mass of film undergoing acceleration and deceleration; but the difficulty still remains of securing adequate lateral guidance in a short gate. However, I suggested the use of a lifting gate, well known in camera mechanisms, which would remove the friction upon the film during the shift period—a system which I estimated would reduce the stresses on the film by two-thirds.

IT was, I remember, many years earlier that I had urged the provision in the gate of a dummy aperture for racking purposes, a feature now found in many projectors. An even better proposal which I put forward in this paper was that an auxiliary optical system should project a small image of the frame in the gate upon the wall of the projection room, thus not only helping the projectionist to thread in rack, but virtually preventing any risk of the last few feet of the leader being projected on the screen.

One advance I called for is now partially realised: some means of projecting a picture at a rake without introducing distortion. In so far as CinemaScope films are concerned, distortion can be largely avoided by the use of the Delrama mirror anamorphic.

Turning to the sound head, I believe I am right in saying that the only sound head of modern construction—that is to say, with the film scanned upon a rotating drum—was the RCA, which firm originated both the rotary stabiliser and the isolation of the film feed and optical system upon rubber cushioning. Flutter, I stated, was, after poor acoustics, the most common cause of unintelligible speech.

Today I would say that flutter is a thing of the past in cinemas with modern equipment (it would be interesting to know to what extent safety base, with its low-shrinkage characteristic, has contributed towards this). However, in the 16-mm. projector, flutter is still too often noticeable.

Next I commented: "It seems inconceivable that, although the need for repeated change-overs has been recognised for the past 30 or 40 years, it is only of recent years that change-over devices have become an integral part of certain projectors." The odd bits of gas-chain in vogue in those days are no longer seen, but generally, change-over is still effected from knobs on different parts of the equipment.

The suggestion put forward in my paper is still worthy of consideration: a pair of interconnected switches, which would control motor, dowser and fader. But perhaps this idea has been outmoded by Projectomatic—although in my paper I did predict that an automatic change-over system would one day emerge.

TODAY the hope of the future lies in the Xenon lamp. Already this is in use in German cinemas—including, I hear, theatres of the AKC. It is made in two sizes, 1,000 and 1,800 watts, the latter suitable for quite a large screen. I have little doubt that in the natural course of progress it will eventually supplant the carbon arc lamp (although I would not suggest that the carbon manufacturers should shut down just yet!)

In 1943, also, the development of the non-intermittent principle was urged. The Mechau Arcadia projector, after having been scrapped in the cinema has, of course, found a new application in telecine recording. The hope was expressed that post-war research might make the non-intermittent projector a practical proposition.

Today my ideas have veered towards another idea also put forward in the paper: in the cinema of the future there will, I predicted, be a telecine transmitter, and the films will be projected via a television projector, alternating in the programme with direct transmissions. Everything today is going electronic, and the cinema can be no exception.

AN omission from my paper of 1943 which today seems remarkable, is reference to magnetic recording.

Nor did I visualise the possibility of new techniques revolutionising our pre-conceived ideas of projection. This was most remiss of me, since I had read all about Professor Chrétien's Hypergonar—the ancestor of CinemaScope—and had actually seen Fulvue, which was practically the same thing.

THE middle 1920s, when THE IDEAL KINEMA was born, was an eventful epoch for the film industry. Just as two decades earlier films had risen from the fairground and the music-hall to the dignity of the first permanent cinemas, so, during the 1920s, they outgrew the humble electric palaces and the super-cinema appeared.

In the early issues of THE IDEAL KINEMA many of the leading cinemas of today are described and their openings reported: most of the famous West End cinemas, theatres such as Davis's, Croydon, and many provincial halls.

Just as a few years earlier the orchestra had replaced the tinkling piano, so now the organ grew in popular favour—and appealed to the exhibitor because of its lower cost.

Although we may think of CinemaScope and

continued on page 22

Osram

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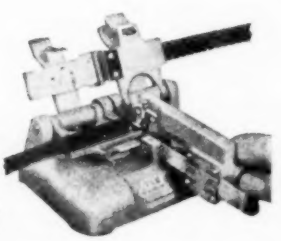

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Lamps and Lighting

CONTINENTAL POINTERS ON COLOUR DECOR

by "Luminaire"

THE simple lines and striking decor of the Cinema Lys, Lisbon, as referred to in a recent issue of the *International Lighting Review*, prove to be worthy substitutes for the embellished decorative mouldings and ostentatious luminous elements so often installed in modern cinemas.

The decorative colour scheme, which comprises a black ceiling, yellow walls, and red seats, is designed to focus attention on the screen and, in the absence of other visual distractions, this objective should be successfully achieved.

Lighting consists of a combination of ceiling-recessed, hot cathode, fluorescent lamps (40 W and 20 W) and tungsten filament lamps (150 W). The former are of the instant short type, thus avoiding the disturbing effect of flashing when first switched on. To produce a psychological effect of coolness, "daylight" tubes installed in louvred troughs across the width of the auditorium, are used throughout. The tungsten filament lamps, positioned between the fluorescent tubes, are utilised for emergency lighting and also for dimming. Average illuminations of 5 ft. candles and 6 ft. candles, are provided in the auditorium and balcony respectively. Ordinary 60 W tungsten lamps are utilised as footlights and six 150 W "reflector spotlights" are installed above the stage.

For Forecourts

SEEN against the background of a modern façade, the lighting standards installed in forecourts should be of sympathetic architectural design. Many manufacturers have successfully combined contemporary styling with engineering efficiency and are able to offer inexpensive top post lanterns for use with tungsten and discharge lamps.

One such unit, introduced by Revo, Ltd., consists of a tapered cylinder of "Pinspot Perspex" and a sheet steel reflector canopy. The underside of the latter is finished in white enamel and the top and cast base are in light blue or are finished to suit individual requirements. Control of light distribution is effected by an internal prismatic dome refractor.

Cleaning and lamp replacement are simplified, as the top canopy is hinged for access to the lantern interior. The lanterns, which can be used with 100/150/200 W tungsten or 80/125 W mercury lamps should be mounted, on columns, 12 to 15 ft. above ground level.

Sodium Prices

THE high luminous efficiency of sodium vapour lamps encourages their use where colour appearance of objects is of secondary importance to economical running costs. For the external illumination, particularly in foggy atmospheres, of large areas such as car parks and yards, sodium lamps housed in suitable fittings, can be highly recommended.

Until quite recently little improvement had been made in the fundamental construction of the sodium lamp, which was introduced in the early thirties. The lamp itself consists of a "U"-shaped glass tube, containing neon gas and sodium vapour and fitted with an electrode at each end. This element was inserted into a separate and detachable double-walled glass vacuum jacket.

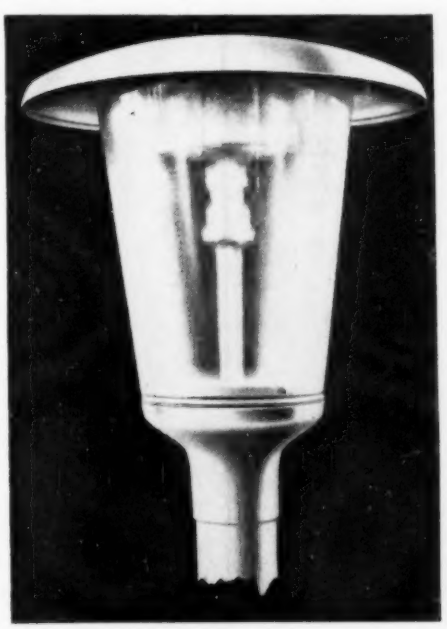
GEC now states that all sodium lamp ratings (45, 60, 85, and 140 W) are offered in a one-piece construction, at prices representing savings in first cost. This new integral construction protects the "U" tube from the effects of damp and dirt and ensures reliable starting under all atmospheric conditions. Furthermore, maintenance, replacement, transport and storage will all be simplified.

Recessed Styles

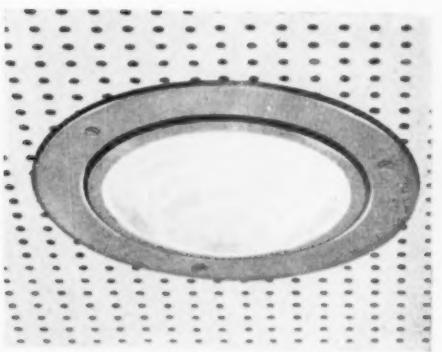
THE increasing tendency towards the installation of false ceilings, the cavities above which are used for the accommodation of engineering services, has led to the marketing of a variety of types of recessed lighting equipment.

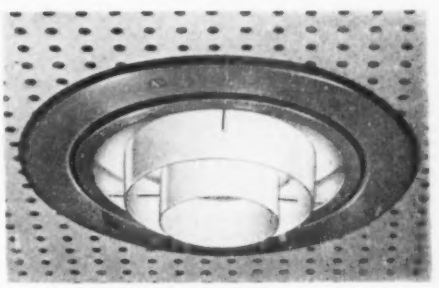
Due to their unobtrusive nature, few should find fault with their aesthetical design and the main point of consideration concerns the form of light emission and distribution, and the facilities for cleaning and lamp replacement. A noteworthy effort at standardisation is that of the newly formed AEI Lamp and Lighting Co., which now offers a large number of new tungsten lamp display units, all of which can be formed from a series of basic lighting components.

For complete ceiling recessment there are fittings of three sizes ($6\frac{1}{2}$ in., $8\frac{3}{4}$ in. and $12\frac{7}{8}$ in. hole diameters) for use with 60/100, 100/150 and 200 W general service tungsten filament lamps. An aluminium reflector and a soffit ring, provided with a three point screw fixing, forms a combined common component for mounting in the ceiling (often of the acoustic or heated panel type). If desired, the emitted light may be diffused through a circular glass visor (flat, moulded or stepped lens) or controlled by circular metal louvres finished matt white.



The Revo post-top lantern No. 15002





Two types of recessed ceiling fittings by AEI, the W13/105/108 and the W13/105/110

All these elements are supported by an easily detachable ring which is engaged within the soffit ring by means of three bayonet catches. For decorative effect, when used with or without louvres, there is a pierced skirt which is fitted so as to project below the ceiling line.

For cavities of limited depth, drum-shaped reflectors and horizontally operated lamps can be employed with any of the above alternative methods of light control. For high intensity accentuation one often uses 75, 100 or 150 W reflector spotlight lamps. These can be fitted into stirrup supported lampholders (BC or ES type) attached to the standard $4\frac{1}{2}$ in. or $5\frac{1}{4}$ in. diameter soffit rings. Designed to cater for shallow ceiling cavities, the semi-recessed range of fittings incorporate projecting white enamelled metal skirts which support the diffusing glasses or louvres.

Many display schemes call for variation in light beam direction, these demands will be met by a semi-recessed adjustable "eyeball" unit supplied in two sizes, for 75/100 and 150 W "reflector" lamps. Very often it is impossible to conceal the body of the lighting fitting and consequently the new range includes a series of cylindrical spinnings ($8\frac{1}{2}$ in. and $10\frac{1}{2}$ in. depth) designed for direct, two-hole fixing, to a main ceiling. External finishes are red, white or black and lamp ratings accommodate 60/100 W and 150/200 W.

The diffusers are supported by the standard glazing rings fitted in the bottom opening of the cylinders. Other reflectors are of flask, cone or diabolo shape and these are listed complete with fixing and supporting components, for ceiling, wall bracket and pendant usage.

The complete range of fittings is contemporary in character and the different items can be adapted to meet the individual requirements of the architect or engineer. There are many schools of thought which favour lighting treatments featuring both tungsten and fluorescent luminaires. The vast number of alternative catalogued items available today ex stock should, in many cases, render unnecessary the design of expensive "specials." By fabricating large quantities of standard component parts and encouraging their interchangeability in order to achieve a variety of luminous elements, manufacturers are able to keep prices within reasonable limits.

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Points for Projectionists

Union is Key to Battle Against Depression

THE New Year, like a new day, generally finds us looking into the future more intently than is usual. What is the future to be? What ambitions will be fulfilled? Will our plans mature? Will our hopes be realised?

It is reasonable to base our ideas on what has happened to us in the past. Let us then, as projectionists, look back a little while. At the beginning of 1956 we, as were most people in the film industry, were a little apprehensive of the coming of nation-wide television.

We had seen established the new methods of screen presentation such as CinemaScope and wide-screen, and rightly felt that in these we had good and reliable counter-attractions. We saw improvements in film photography with their consequent improvements in projection. In general, and despite the prospect of strong competition we had hopes for a reasonably good year. The weather, too, was on our side for the summer of 1956 was bad enough to send into our cinemas people who would otherwise have stayed outdoors.

It was, I suppose, these things which helped projectionists to remain somewhat complacent and disinterested in consolidating the position in which we found ourselves. Evidence of this is to be found in the decline of NATKE membership.

AS the year passed on, not only the impact of commercial television but the continuously rising costs of running cinemas and the persistent drain caused by entertainments tax began to have serious effect upon us until many of the smaller cinemas and now, some of the larger ones have had to close down; with the result that some of us have lost our jobs. What effect the international situation is likely to have upon us we have yet to discover.

Taking everything into consideration and assuming that the production side of the business is alert to the competition of television, the things which deprive us most of security, are the costs of running a cinema and entertainments tax.

The prospects of being able to run cinemas more economically than at present are very slight, so we must hope for an entertainments tax reduction so that our employers can hold on to a goodly portion of the vast sum which the government now takes from them, so that, not only would they be able to continue in business, but could create conditions in their cinemas which would help to meet the competition of television and other untaxed counter-attractions. Furthermore, providing the relief is large enough, we projectionists could rightly expect the increased wages of which so many of us have been deprived for so long.

WHAT to do about it then? Simply this: Join NATKE. By doing so, you will be taking the quickest and shortest step you possibly can to make your voice heard in government circles; and don't think that that isn't necessary despite the promises which have been made. If all projectionists were to join NATKE immediately they could certainly rely upon Sir Tom O'Brien to raise the roof on their behalf in Parliament.

If you don't and you let this opportunity go by, then you will only have yourselves to blame if cinemas continue to shut down; so don't wait for yours to close before you start looking around for something to do. Do what you can now. Make your main 1957 resolution to do something for yourself and incidentally something for your fellow workers at the same time.

Your inaction at this stage may put you on the dole. There are, of course, a number of otherwise sound thinking and responsible projectionists who say they are opposed to trade unionism. In my opinion this springs in most cases from lack of real knowledge of what present-day trade unionism stands for and accomplishes.

1957, then, will, I believe, see one of two things for us projectionists. Firstly, a reconstruction of the industry whereby we shall benefit considerably, or a depression from which we will all suffer to the extent that large numbers of cinemas will have to close.

I AM sorry that I have had to paint such a gloomy picture, but there it is, and I sincerely hope that by doing so I will have awakened interest in the minds of many of my fellow projectionists, to all of whom I sincerely wish a happy and prosperous New Year.

The Projectionist

Major-General N. V. Watson, general manager of the Army Kinema Corporation, with R. Keetch, of the AKC and Dr. Kleiber, of the Bauer Company, examining the Xenon lamp-house at the new Globe, Dusseldorf, first commercial cinema to use the lamp

Pioneers in Projection

AMONG the advertisers in the early issues of THE IDEAL KINEMA was J. Frank Brockliss, Ltd., which has now been operating in the cinematograph machinery business for nearly 46 years.

The early history of the company was told last year in the special issue of the KINE. which celebrated 60 years of films, but the present is, perhaps, an appropriate time to recount its contributions since the coming of sound film. First it must be recalled that Brockliss's even in those early days had already been responsible for the installation of projection equipment consisting of Simplex projectors, with Peerless or Hall and Connolly arc lamps in practically all West End and leading theatres throughout this country and France.

Since the Western Electric and RCA soundheads had both been designed to suit the Simplex projector head it was inevitable that, upon the introduction of talkies by the Americans in 1927, the company became involved in a period of intense activity, being called upon to supply and install projection equipment used in theatres with the new sound reproduction equipment, not only for all West End and leading theatres in this country but in practically every major film studio and film laboratory then located in this country and abroad.

The first cinema to be equipped for sound (experimentally and in secret), it was claimed by Teddy Nichols, engineer of PCT, was the New Gallery Cinema, early in 1927 where Brockliss was responsible for projection. Then followed the Piccadilly Theatre and Regal (now Odeon) Marble Arch, and finally all the leading theatres in the West End of London and in the provinces.

During this period the leading theatres in Paris, first among them the Paramount, and others throughout France, also began conversion for sound, and the demand for suitable projection equipment lead to the formation of the Brockliss company in Paris in 1927.

The activities of Brockliss's continued along these lines right up to 1939 during which period they introduced the well-known American McAuley products with the name "Peerless," with Hall and Connolly high intensity condenser lamps and, from their own design section, the Stelmar projection lamp and spotlight, and the Monarc projection lamp.

During the period of hostilities the company undertook a series of war production jobs and at the same time continued with the maintenance of cinema projection installations. Post-war conditions, however, necessitated changes. The Peerless Magnarc was manufactured in England, and in 1950 the company took up the representation for the British Isles of the Philips sound and picture projection equipment.

Realising that the fundamental requirement of the exhibitors is dependability, Philips has, from the first, favoured the installation of completely duplicated amplification. Sound breakdown is therefore almost impossible with this duplication which coupled with the provision of built-in test frequency oscillator means that the projectionist himself can safely and in a simple fashion undertake routine servicing of the equipment, although an efficient service organisation is maintained by Brockliss upon which the exhibitor can call if it should ever become necessary.

With the coming of the CinemaScope system, Brockliss was again heavily engaged from the start in supplying and installing the necessary new equipment for this type of film. A major problem in many cinemas was picture distortion due to the combination of projection rake and a curved screen, and for this reason the company became interested in the Delrama anamorphic system manufactured by Oude Delft in Holland, which has proved eminently satisfactory.

The position enjoyed by the firm of Brockliss is due in no small measure to the fact that the company is run by people who have had life-long experience in their jobs. Chairman is Tom Chilton, whose experience dates back to the early days of the industry, and who has been with the company since 1924. General manager Frank Durban has spent all his life as a projection engineer. He has been recently joined by Frank Brockliss, nephew of the founder of the company.

In Manchester the company is represented by Bill Chilton, who like his brother is a veteran of the industry. E. Dobbing of Glasgow is an experienced sound and electronic engineer. Derek Raphael of Leeds is, like A. B. Boulton of Birmingham, a former projectionist and cinema engineer.

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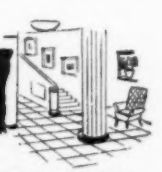

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By R. H. CRICKS, FBKS, FRPS

Electricity For a long time we have been studying electricity, but we have not yet discovered how it is produced. The simplest source of electricity is, of course, the battery, of which we use two types in the cinema. The usherettes' torches use a *primary cell* or *primary battery* (a cell is the single unit several of which constitute a battery). For the emergency lighting—and for early sound systems, for motor-cars and many other applications—we use an *accumulator*, more technically known as a *secondary battery*.

We may regard the discovery of the primary cell some 150 years ago as the starting point of practical electricity. If two dissimilar substances are immersed in an acid or alkali, a *potential difference* or voltage will exist between them, and if they are connected externally by a conductor, a current will flow.

Most cells today are some form of the Leclanché type, in which carbon and zinc are the electrodes, in a solution of salammoniac. In the ordinary dry cell the zinc forms the casing containing the electrolyte (the salammoniac) and a rod of carbon forms the other electrode. If you put a voltmeter across the terminals of such a cell, it will read at first about 1½ volts; but this voltage will quickly drop, due to the fact that the chemical action produces a blanket of hydrogen bubbles around the carbon.

To prevent this a *depolariser* of manganese dioxide surrounds the carbon rod, generally in a canvas bag. The cell will then continue to give current until the electrolyte is exhausted. Naturally, to get a higher voltage we connect a number of cells in series to form a battery.

Both primary and secondary cells produce electricity by chemical action; but whereas with the primary cell the chemicals are gradually exhausted and have to be renewed, with the secondary cell the chemical action can be reversed by feeding in current in the opposite direction to the normal flow. We will learn more about secondary cells next month.

□ □ □

Projection Having learnt about the main components of our projector, we can consider how they are assembled together. We have to provide means for driving the top and bottom sprockets, the intermittent motion, the shutter and the take-up (the sound-head drive we will consider later).

On early projectors the drive from the motor was taken to the flywheel by a belt; the pinion on the flywheel meshed with gears eight times its size on the sprocket shafts, and the shutter was driven usually through bevel gears. The take-up drive was by belt, chain, or bevel gears, of course with a friction.

When sound was introduced from America, the drive from the motor was taken to the sound head by means either of belts or chains, and with this type of equipment—still the most general—it is the sound head that drives the projector. Early sound equipment was designed around the Simplex projector, which had a drive shaft near the bottom of the mechanism, and other projectors designed for sound adopted the same position of the drive.

In most modern projectors the chain of large gears is replaced by a vertical shaft with spiral gears. In the Philips projector, for instance, the motor drives through spiral gears to a massive vertical shaft. From this shaft are driven (from top to bottom in the photograph) the top sprocket, the drum-type shutter, the intermittent motion, the bottom sprocket, and the oil pump (the top of the gear driving this can just be seen).

The enclosed lower part of the mechanism forms a sump for the oil. Oil is filtered twice (once by a magnetic filter) and pumped to the top of the projector, from which, by means of the pipes shown, it is squirted to every part of the mechanism, with an especially generous flow to the intermittent motion.

□ □ □

Sound If a constant frequency—say of 1,000c/s—is recorded on a film, then if that frequency is to be reproduced in correct pitch, the film must be fed at absolutely correct speed past the scanning slit, so that exactly 1,000 sound waves move past the slit per second. If the film runs too fast the pitch will be high, if too slowly the pitch will be low.

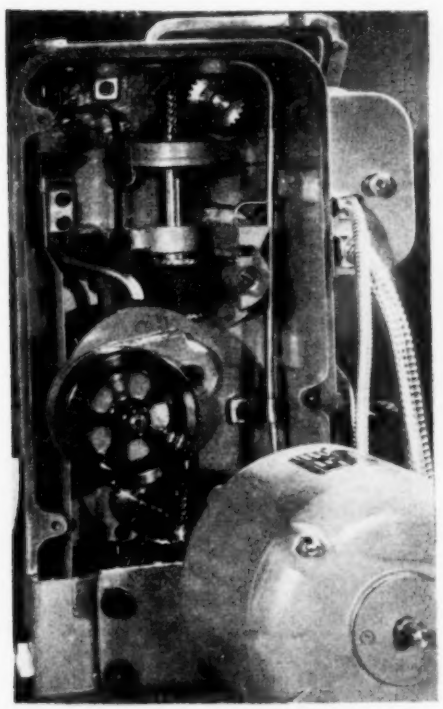
Actually it is fairly unimportant if the speed is fast or slow, provided it is constant; few people have much sense of absolute pitch, but everybody, except those who are tone-deaf, will notice changes in pitch, and it is changes in speed that ruin the quality of sound. These changes are of two types, which have rather different effects.

If the speed of the film varies fairly slowly—say it goes faster and slower every second or half a second—we can hear the individual changes in pitch. This effect we call *wow*, and it is the general cause of that "sour" sound that sometimes mars reproduced music.

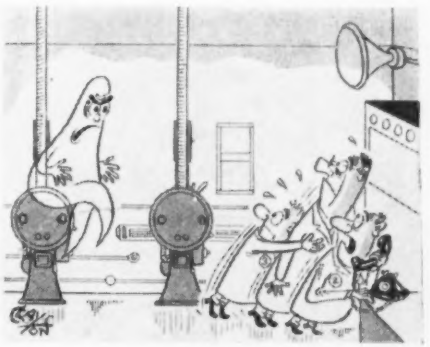
Because the film travels at the rate of 24 frames or 96 perforations per second, speed variations at either of these frequencies are not unusual. Although changes in pitch still occur, they are too quick for us to hear them individually; their effect is a blurring of the high frequencies and a general roughening of the sound, especially of voices. This effect we call *flutter*.

The most obvious cause of wow is variations in motor speed, which may in turn be due to mechanical faults in the projector—for instance, tight spots in the gearing—or to mains variations. It is a fault that rarely occurs in the cinema today, but it is still a difficulty in 16-mm. projectors.

Flutter is a far more difficult fault to remedy. The most obvious causes are faulty engagement of the perforations in the film with the sprocket teeth (96c/s) or projector vibration at picture frequency (24c/s) being transmitted to the sound head. Next month we will see how clever design has practically eliminated flutter from the modern sound system.



The Philips projector, illustrating modern method of drive



"The Service Engineer says 'What's so strange about a ghost on one machine?'"

□ □ □

Homework

1. On open circuit (that is, with no current flowing) a primary cell has an output voltage of 1.6V. When a current of ¼A is taken from it, the voltage drops to 1.3V. What is the internal resistance of the cell?

2. In the photograph of the Philips projector mechanism the spiral gear driving the shutter shaft has a much longer face than the other gears. Why?

3. Theoretically the angle of the shutter blade should be altered when a standard aperture plate is replaced by a CinemaScope aperture. Why? (In practice the discrepancy is too small to worry about).

4. A 1kc/s note recorded at the standard film speed of 90 ft. per minute is reproduced at the television speed of 25 frames per second. What will be the actual frequency reproduced?

□ □ □

Answers to Last Month's Homework

1. Full lamp current $= \frac{1000}{240} = 4.16$ amps. Resistance of lamp $= \frac{240}{4.16} = 57.6$ ohms.

Black-out current = 0.208 amps.

Total impedance when dimmed $= \frac{240}{0.208} = 1,154$ ohms.

By working this out you will find that the resistance of the lamp is unimportant, therefore the value of the reactor may be taken as 1,154 ohms.

2. The intermittent sprocket has 16 teeth, equivalent to four frames of film, therefore to rack the film one frame in the gate will necessitate a quarter-turn or 90 degree movement of the intermittent motion. The sun-and-planet motion of the gears is compensated in the shutter phasing system.

3. It will be seen from the sketch that with the azimuth error shown (naturally much exaggerated) two high-frequency wave-forms will be scanned at the same instant, therefore this and higher frequencies will not be clearly reproduced. On the other hand, a note of lower frequency and consequently longer wave-length is still individually scanned and correctly reproduced.

Talking Technically
—continued

the other new techniques as something new, actually they had their beginnings in those distant days. In December, 1930, I wrote an article comparing the relative advantages of wide film and an expanding screen used with normal film.

TODAY we are in the middle of a period of change just as we were 30 years ago. Today the cinema faces a degree of competition then undreamed of; but today, just as 30 years ago, it is the technician and the projectionist who will be chiefly responsible for the cinema holding its own.

One far-reaching development which will in future years be credited to the present decade is magnetic image recording—a logical development from sound recording, which John Logie Baird foresaw in principle many years ago. The basic idea is, of course, simply the recording of television signals.

Last month Dr. H. R. L. Lamont described to the DKS the RCA system, in which a ½ in. tape travelling at 30 ft. per second records colour television signals extending up to a frequency of 3.5 Mc/s. In another system under development in the States by Ampex, and also on the Continent, a 1 in. tape is used travelling at the normal rate of 15 in. per second, and the image is recorded transversely across the tape one picture line at a time.

Not surprisingly, the most serious difficulties are not electronic but mechanical—the maintenance of a constant tape speed; faults which in the case of sound give rise to wow and flutter, in the case of image recording cause unsteadiness and picture waviness. A complicated servo system is necessary to maintain a sufficiently constant tape speed.

No doubt a time will come when the photographic emulsion will be as obsolete as the 16 in. disc in the cinema; but that time is still far distant.

ON this page is a letter from F. A. Tuck, of BTH, on the subject of striking the arc at full load. Actually this term is quite a misnomer, for, as follows from Mr. Tuck's mathematical illustration, a resistor-fed arc struck at the full-load setting of the resistor will in point of fact be subjected to an enormous overload.

I would put the point more forcefully than Mr. Tuck, and say that on no account should a resistor-fed arc be struck in this manner.

However, with a choke-controlled rectifier the position is quite different. I remember S. A. Stevens, of Westinghouse, pointing out at another BKS meeting that in the case of the Westinghouse rectifier the current surge is negligible, because of the remarkable control effected by the resonant circuit.

Whenever the arc is struck by touching the carbons, there is some risk of damage to the crater, which may take a minute or more to burn away. There is, of course, another way of striking an arc which avoids this damage—by the use of a high-voltage discharge. But the cost of this system, due chiefly to the safety precautions necessitated, make it impracticable in the cinema.

CHIEF of the Haymarket, Newcastle-on-Tyne, A. White, has experienced a fault in CinemaScope projection which I have occasionally noticed, although never to the same extent as in his case.

"When showing CinemaScope films," he says, "there has appeared on an occasional scene a sort of double image of one or more of the characters in the scene, several feet to the left of the original figure, rather like a shop-window reflection. The 'ghosts' have almost always been noticed on a scene with a dark background with the figures in light clothing. On the other projector the picture was normal, therefore the possible causes were confined to one projector.

"Recently we had a picture which had as its central feature a native clothed in white robes; against a dark background the "ghost" appeared very distinctly, so we set to work determined to lay the 'ghost.'

"By a process of elimination and substitution, we found that by removing or changing the angle of the port-hole glass the picture was normal. My theory is that the port-hole glass was lying at exactly the same angle as the anamorphic lens (GK Type P) which is only about 10 in. away, and some of the reflected light was entering the front of the lens and being re-projected by the front prism, causing the secondary image to appear some distance to the left of the original figure.

"Anyway, altering the angle of the port-hole glass a few degrees has completely cured this fault."

I have no doubt that Mr. White has hit upon the solution. To elaborate a little further: an ordinary projection lens, like a cylindrical-type anamorphic, has a convex front face; any light reflected from the port-hole glass back to the lens will after re-reflection be dispersed, forming no image. But the Varamorph has a concave front element; evidently this is of such curvature that rays reflected from the port-hole glass may in certain conditions be so re-reflected as to form an image on the screen.

If the port-hole glass were perfectly square, the image would correspond with the principal image and would be unnoticed; if the port-hole glass were slightly out of square the image would be deflected to one side. But if the port-hole glass is adjusted still further out of square the image will disappear altogether.—R. H. C.

Letter to the Editor

Arc Striking on Full Load

AT recent BKS meetings, reference has been made to the above, the latest instance being in the discussion on the paper, "How Projectomatic Works," as reported in your issue of December 6. In reply to a question the lecturer made the statement that "some manufacturers such as BTH recommend that the arc be struck on full load."

As this statement is only true in certain circumstances, we feel that it would be very desirable to place on record a statement clarifying the problem.

We think it will be appreciated that when carbons are allowed to touch there is bound to be a rush of current in excess of that which flows when the arc is subsequently opened, due to the fact that the resistance of the arc is not in circuit at the moment of striking. The extent of this initial current surge is highly important, and its limit is set by the characteristics of the arc supply.

With modern choke-controlled rectifiers or other supply sources which may be described as "constant current," the surge at striking is generally limited to 50 per cent. above the full-load current. In such conditions a 75A carbon may have to withstand temporarily a momentary surge of 110A, and modern carbons can be expected to handle this without splutter or distress. These are therefore the conditions under which full-load striking is acceptable.

On the other hand there are still a number of supply sources such as motor-generators, where a supply voltage of 80/100V is provided and arc stability is achieved by the addition of a resistance in series with the arc, thus with a 75A arc and 50 arc-volts, the series resistance would cater for the difference of 30 volts and would have a value of .4 ohms. The resistance of the arc will be equivalent to .67 ohms under full load conditions giving an arrangement as follows:

Running:

$$\frac{80V}{.67 \text{ ohms (arc resistance)} \quad .4 \text{ ohms (series resistance)}} = 75 \text{ amps}$$

Striking:

$$\frac{80V}{.4 \text{ ohms (series resistance)}} = 200 \text{ amps.}$$

This striking surge is rather too much to expect of the carbon tips, and damage to the crater and splatter on the mirror is almost certain to occur. This is the case, therefore, where full load striking is *not* acceptable and where an arc striking resistance (limiting the initial surge) must be employed.

F. A. TUCK.

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Chloride Appointments

Two new sales appointments have been announced by the Chloride group of companies.

T. Dawson has taken up the new post of group export sales manager and will, in addition, be responsible for commercial liaison with the group's overseas associate companies. P. C. Aspinall, who was assistant export manager under Mr. Dawson, becomes the new export manager for Chloride Batteries, Ltd., in succession to Mr. Dawson.

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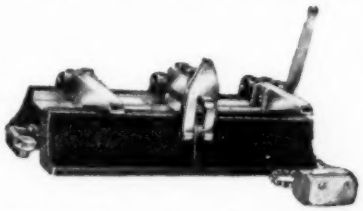

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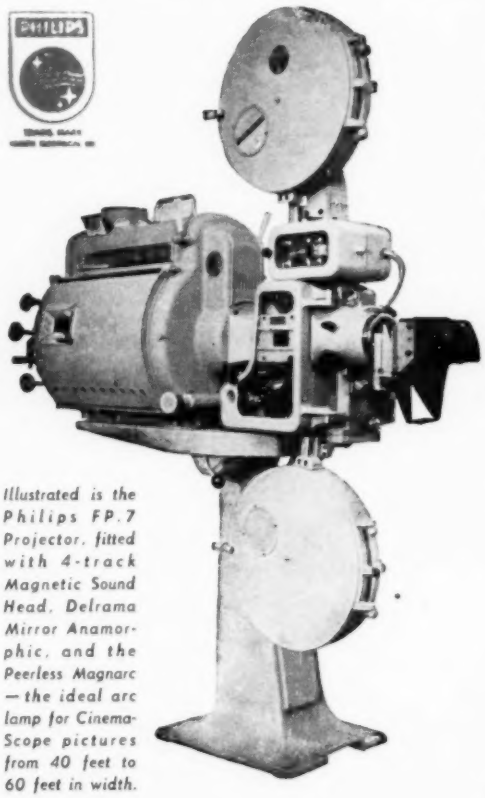

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